

**Amendments to the Drawings:**

The attached drawing sheets include changes to Figures. In particular, Figures 1A – 3D have been amended to be identified as Figures 1a – 3d as identified in the text. Additionally, Figs. 2a and 2c have been amended to correct typographical errors. In particular, the first instance of “206b” has been changed to “206a” and the second and third instances of “205a” have been changed to “205b” and “205c,” respectively, to conform to the text. No new matter has been added.

## REMARKS/ARGUMENTS

In the Office Action mailed August 20, 2009, claims 1 – 15 were rejected and claims 16 – 24 were withdrawn from consideration. In response, Applicants have amended claims 1, 5, and 7 and canceled claim 4. Applicants hereby request reconsideration of the application in view of the amendments and the below-provided remarks.

For reference, paragraphs [0017], [0024], and [0025] are amended to correct typographical errors. The Figures are amended to

### Objections to the Specification

The Office Action suggests that section headings be added to the specification, according to the guidelines set forth in the MPEP. Applicants note that the suggested section headings are not required and, hence, Applicants respectfully decline to amend the specification to include the indicated section headings.

### Objections to the Drawings

Figures 1A – 3D have been amended to be identified as Figures 1a – 3d as identified in the text. Additionally, Figs. 2a and 2c have been amended to correct typographical errors. In particular, the first instance of “206b” has been changed to “206a” and the second and third instances of “205a” have been changed to “205b” and “205c,” respectively, to conform to the text. No new matter has been added.

### Claim Rejections under 35 U.S.C. 102 and 103

Claims 1 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt et al. (U.S. Pat. No. 6,232,564, hereinafter Arndt). However, Applicants respectfully submits that these claims are patentable over Arndt for the reasons provided below.

### Claim 1

Claim 1 has been amended to incorporate the limitations of claim 4 and to particularly point out that the vias are disposed in a second grid of columns and rows “of equally spaced vias” having a substantially second pitch between adjacent vias. Support the amendment to claim 1 is found in Applicants’ specification at, for example, Figs. 2A and 2C, which show a grid of equally spaced vias (210). As amended, claim 1 recites:

“A multilayer circuit board comprising:

a first layer;

a fourth layer substantially parallel to the first layer;

a plurality of electrical contacts formed within the first layer of the multilayer circuit board and disposed in a first grid having, a first subset of the plurality of electrical contacts for routing within the first layer and a second subset of the plurality of electrical contacts for routing within the fourth layer and,

a plurality of vias formed between the first layer and fourth layer and each disposed adjacent at least one of the second subset of the plurality of electrical contacts,

the plurality of vias having a spacing between each pair thereof larger than a smallest spacing between adjacent electrical contacts of the plurality of electrical contacts;

wherein the first grid comprises a Cartesian grid comprising columns and rows, where each row and each column comprises alternating electrical contacts from the first subset and the second subset, the plurality of vias disposed in a second grid comprising columns and rows of equally spaced vias having a substantially second pitch between adjacent vias, where electrical contacts for the first subset are routed within the first layer using one of a plurality of first electrical traces and electrical contacts for the second subset are routed along the fourth layer using one of a plurality of second electrical traces.” (emphasis added)

Applicants assert that Arndt does not teach vias that are disposed in a second grid of columns and rows “of equally spaced vias” having a substantially second pitch between adjacent vias as recited in claim 1.

With reference to Fig. 1, Arndt teaches vias (35, 40, and 42). As shown in Fig. 1, the vias (35, 40, and 42) are not disposed in a grid of columns and rows of equally spaced vias having a substantially second pitch between adjacent vias. Because Arndt does not teach teaches vias that are disposed in a grid of columns and rows of equally spaced vias

having a substantially second pitch between adjacent vias, Applicants assert amended claim 1 is patentable over Arndt.

#### Dependent Claims 2, 3, and 5 – 15

Claims 2, 3, and 5 – 15 are dependent on claim 1. Applicants respectfully assert that these claims are allowable at least based on an allowable claim 1. Additionally, each of claims 2 and 5 – 7 may be allowable for further reasons, as described below.

Claim 2 recites in part that “the plurality of vias have a spacing of at least 1.1 times the first grid spacing.” Applicants assert that Arndt does not teach such a spacing. For example, the spacing between the via (40) of land (36) and the via of land (33) is not 1.1 times the first grid spacing.

With regard to claims 5 – 7, the Office action acknowledges that Arndt does not teach the specific limitations of the claims. The Office action then concludes that it would have been obvious to modify the system of Arndt “in order to optimize the surface area of the board.” Applicants assert that the general statement “in order to optimize the surface area of the board” does not support a *prima facie* case of obviousness.

In order to establish a *prima facie* rejection of a claim under 35 U.S.C. 103, the Office Action must present a clear articulation of the reason why the claimed invention would have been obvious. MPEP 2142 (citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_ (2007)). The analysis must be made explicit. *Id.* Additionally, rejections based on obviousness cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *Id.*

### **CONCLUSION**

Generally, in this Amendment and Response, Applicants have not raised all possible grounds for (a) traversing the rejections of the Action or (b) patentably distinguishing any new claims (i.e., over the Cited References or otherwise). Applicants however, reserve the right to explicate and expand on any ground already raised and/or to raise other grounds for traversing and/or for distinguishing, including, without limitation,

by explaining and/or distinguishing the subject matter of the Application and/or any cited reference at a later time (e.g., in the event that this Application does not proceed to issue with the claims as herein amended, or in the context of a continuing application).

Applicants submit that nothing herein is, or should be deemed to be, a disclaimer of any rights, acquiescence in any rejection, or a waiver of any arguments that might have been raised but were not raised herein, or otherwise in the prosecution of this Application, whether as to the original claims or as to any of the new claims, or otherwise. Without limiting the generality of the foregoing, Applicants reserve the right to reintroduce one or more of the original claims in original form or otherwise so as to claim the subject matter of those claims, both/either at a later time in prosecuting this Application or in the context of a continuing application.

Applicants respectfully request reconsideration of the claims in view of the amendments and the remarks made herein. A notice of allowance is earnestly solicited.

At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account **50-4019** pursuant to 37 C.F.R. 1.25. Additionally, please charge any fees to Deposit Account **50-4019** under 37 C.F.R. 1.16, 1.17, 1.19, 1.20 and 1.21.

Respectfully submitted,

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